

Political Will to Improve the Efficiency of Existing Buildings

California Energy Commission

Martha Brook

High Performance Buildings & Standards Development Office

Efficiency & Renewable Energy Division

mbrook@energy.state.ca.us / 916-654-4086

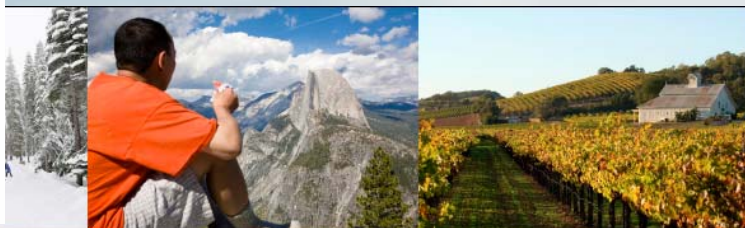


Political Will

- ❖ AB 32
- ❖ AB 1103
- ❖ Long Term Energy Efficiency Strategic Plan
- ❖ Local mandates for existing buildings
- ❖ Energy Upgrade California
- ❖ AB 758
- ❖ Possible Discussion Topics



AB 32 CA Global Warming Solutions Act (2006)



CLIMATE CHANGE PROPOSED SCOPING PLAN

a framework for change

OCTOBER 2008

Pursuant to AB 32

The California Global Warming Solutions Act of 2006

*Prepared by
the California Air Resources Board
for the State of California*

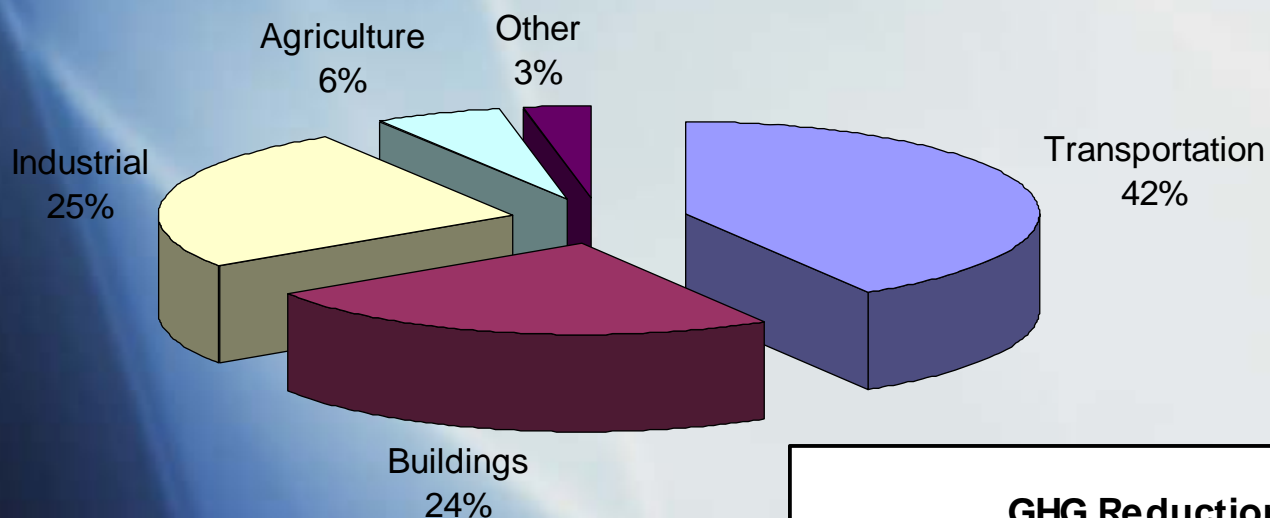
- ❖ Reduce to 1990 levels by 2020
- ❖ Reduce to 80% below 1990 levels by 2050



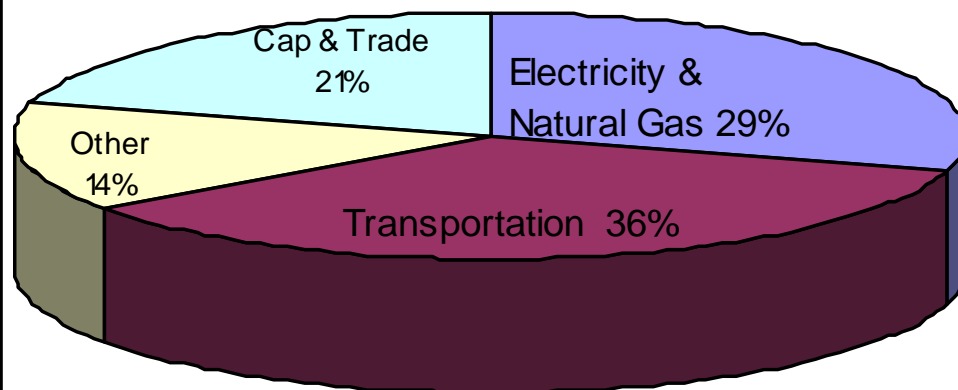
AB 32 CA Global Warming Solutions Act

California GHG Emissions

546 Mtonne CO₂e (2004)



GHG Reduction Share by Sector



AB 1103 Commercial Building Energy Use Disclosure

Valuing the Energy Performance of Commercial Property

- ❖ Commercial building energy consumption disclosure
- ❖ Energy Star rating and data must be disclosed for whole buildings at time of sale, lease or financing
- ❖ CEC developing regulations
- ❖ Proposed implementation early-mid 2011



AB 1103 Commercial Building Energy Use Disclosure

Intent

- ❖ Provide decision makers with comparable energy performance information for buildings in California under consideration for purchase, lease or financing
- ❖ Enable energy efficiency to be valued as other building assets are valued within a real estate transaction
- ❖ Evaluate only the building energy components that are pertinent to the financial transaction



AB 1103 Commercial Building Energy Use Disclosure

AB 531 (2009)

Amends Sec. 25402.10 of the Public Resources Code

- ❖ Removes the January 1, 2010 start date, and replaces it with a schedule to be established by the Energy Commission
- ❖ Adds time before any disclosures will be required
- ❖ Allows the CEC to establish a phase in schedule for buildings by size and type



AB 1103 Commercial Building Energy Use Disclosure

Process Steps

- ❖ Building owner releases data to CEC through U.S. EPA Portfolio Manager reporting function
- ❖ Portfolio Manager emails building data to CEC
- ❖ CEC computes CA Rating
- ❖ CEC generates formatted report with building data
- ❖ CEC sends CA Energy Performance Disclosure report to building owner



California Energy Performance Disclosure
In conformance with California Code of Regulations, Title 20, Article 9 (2010)

Portfolio Manager Building Energy Rating

83
ENERGY STAR
U.S. Environmental Protection Agency

California Building Energy Performance Rating

A
B
C
D
E
F
G

Building Information
Building Name: Grass Valley Office Center
Building Owner: Joe B. Owner
Address: 1234 Rolling Hills Rd.
City: Grass Valley
Zip Code: 95945
Building ID Code: 001234
Building Type: OFFICE
Gross Floor Space: 63,900 sq. ft.

Energy Use Index
Actual: 125 kBtu/sf-yr
Weather Normalized: 130 kBtu/sf-yr

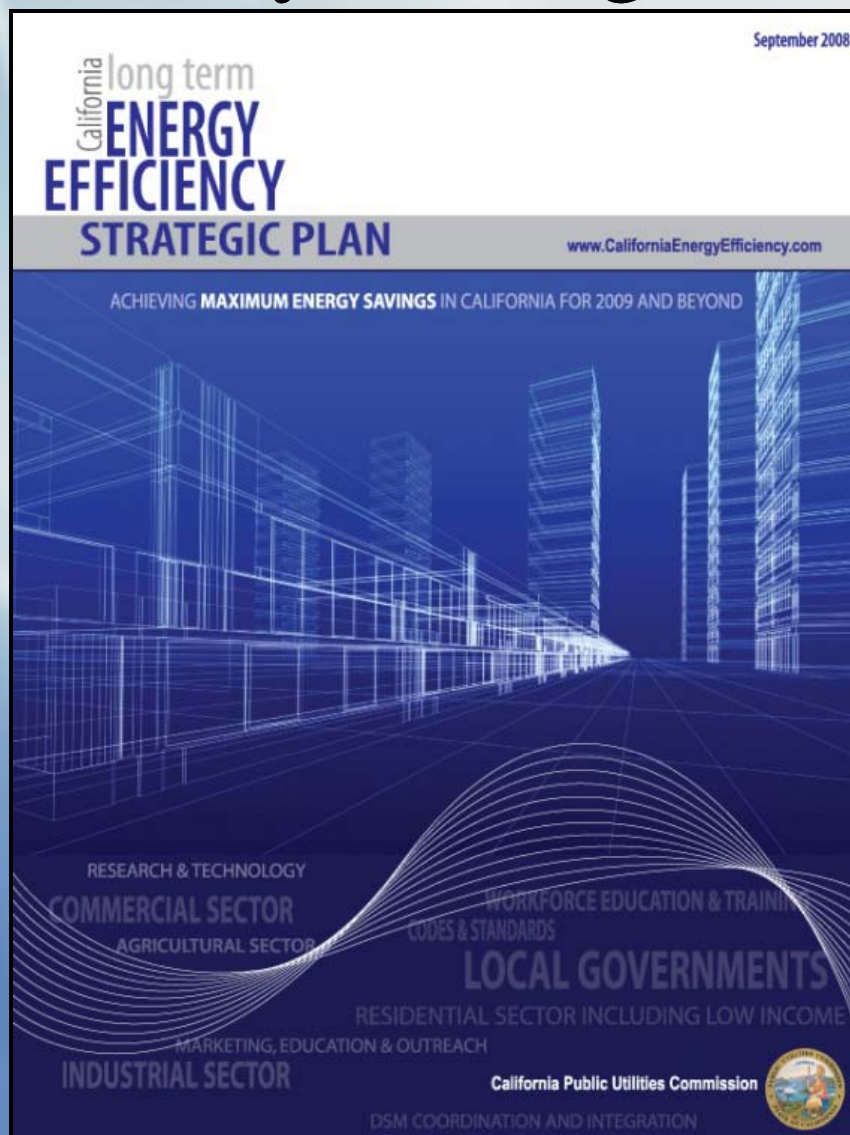
Energy Use Information
Annual Electricity Usage: 591,760 kWh
Annual Natural Gas Usage: 13,288 therms
Other Annual Energy Usage: None
Total Site Energy Usage: 3,347,902 kBtu
Renewable Energy Production: None
Percent of Electricity from Renewables: 0%

The Energy Performance Ratings reported here were determined for this building based on recorded energy consumption, building floor area and the following default or actual building characteristics:

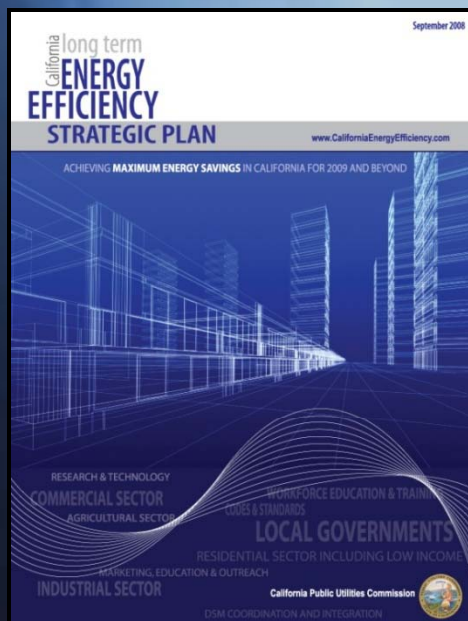
Default	Building Data	Building Characteristic
<input type="checkbox"/>	70	Weekly operating hours
<input type="checkbox"/>	450	Number of occupants
<input type="checkbox"/>	500	Number of computers
<input type="checkbox"/>	70	Percent floor area cooled
<input type="checkbox"/>	70	Percent floor area heated

Building Owner Verification
Date: _____ Signed: _____

California Long Term Energy Efficiency Strategic Plan



California Long Term Energy Efficiency Strategic Plan

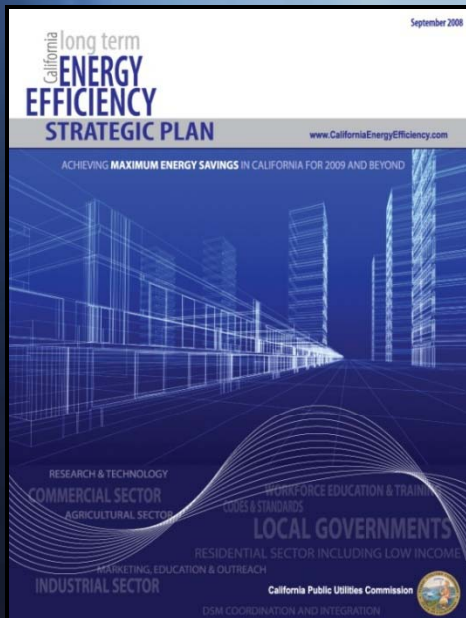


- ❖ In 2008, CPUC launched an initiative to make energy efficiency a way of life in California
- ❖ A roadmap for energy efficiency through 2020 and beyond
- ❖ Goal for existing residential: Reduce consumption 40% by 2020
- ❖ Goal for existing commercial: 50% of buildings will be ZNE by 2030
- ❖ Ongoing stakeholder engagement through established Task Forces
- ❖ Momentum maintained through Action Plans



IOU 2010-2012 Program Portfolio

Residential Existing Building Programs



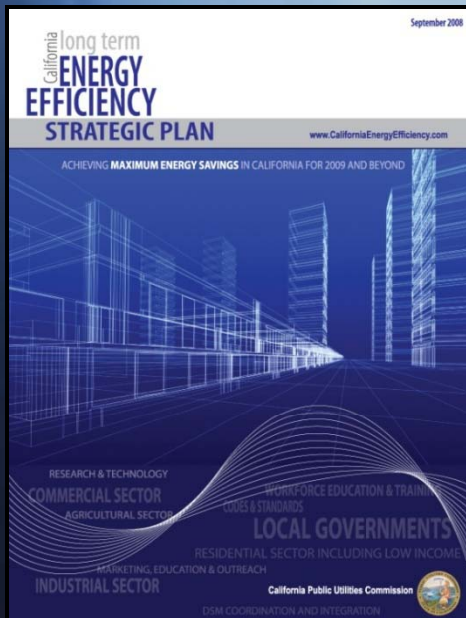
- ❖ Whole-house retrofit program
 - \$111M incentive program offering basic (prescriptive) and advanced (performance) packages
 - Marketed as *Energy Upgrade California*
- ❖ Home energy efficiency rebate (HEER) program
 - \$142M program offers consumer rebates for energy efficiency appliances and equipment
- ❖ Statewide demand-side clean energy Brand and Web Portal
 - \$80M marketing and outreach program will raise public awareness about energy efficiency and other demand-side options



Slide content source: Simon Baker, CPUC, IEPR Workshop presentation of Sep 28, 2010

IOU 2010-2012 Program Portfolio

Commercial Existing Building Programs



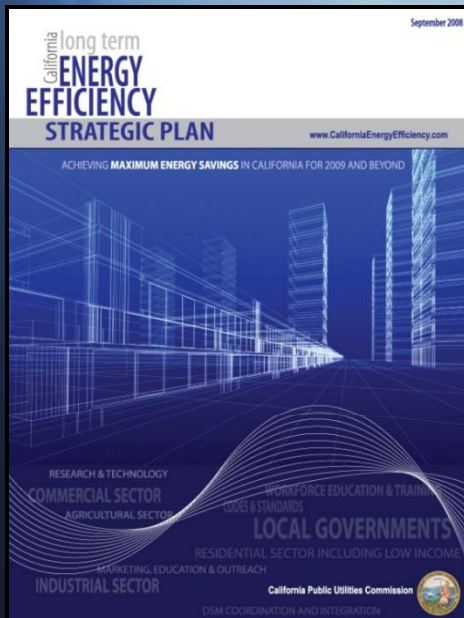
- ❖ Benchmarking requirements
 - D.09-09-047 requires benchmarking of all commercial buildings touched by IOU programs
 - Targeting marketing to high-usage customers
 - Intersects with AB 1103
- ❖ Non-residential audits
 - \$34M program provides technical assistance and cost-effectiveness calculations
 - Existing Building Commissioning Investigations included
- ❖ Calculated incentive program
 - \$149M program provides incentives based on whole system modeling
 - Includes technical and design assistance for retrofit and RCx projects



Slide content source: Simon Baker, CPUC, IEPR Workshop presentation of Sep 28, 2010

IOU 2010-2012 Program Portfolio

Commercial Existing Building Programs



- ❖ On-bill financing
 - \$41.5M program provides 0% financing to credit-worthy non-residential customers installing measures through IOU programs
- ❖ Innovator pilots (e.g.)
 - \$8.6M SCE Sustainable Portfolios pilot targets hard-to-reach leased office space
 - PG&E Green Communities pilot will aid cities and schools that test creative approaches to achieve energy and GHG goals



IOU 2010-2012 Program Portfolio

Cross Cutting Programs

❖ Financing gap analysis

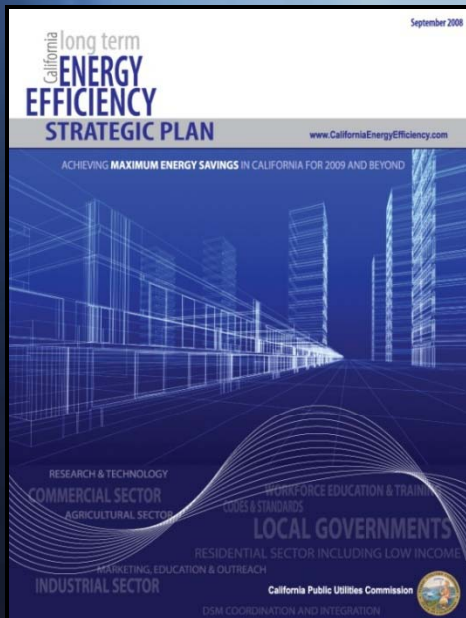
- CPUC Energy Division assessing financing needs & will recommend appropriate ratepayer-backed financing strategies

❖ Integrated Demand-Side Management

- \$11M program promotes integration of EE, DR, and DG
- Progressive Energy Audit Tool - on-line integrated audit tool

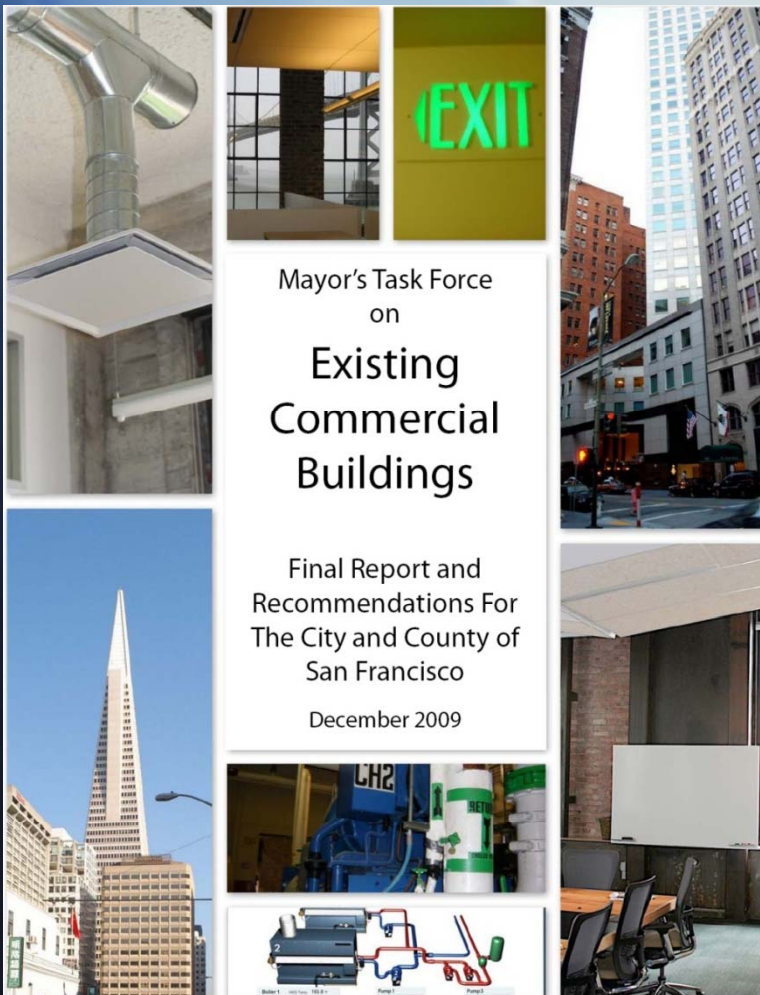
❖ Workforce Education & Training

- \$102M program provides workforce training and education within energy-related trades
- \$10M HVAC WE&T program offers dedicated, industry-specific training
- CPUC Energy Division conducting WE&T needs assessment



City of San Francisco

A 50% reduction in commercial building energy use in 20 years will have the same effect as taking 50% of commercial building stock to zero-net energy, but at lower cost¹. Tripling the pace and coverage of energy audits – combined with strategic actions to maximize implementation of cost-effective projects – is estimated to reduce climate emissions by at least 64,000 tons per year.



Summary of Existing Commercial Buildings Strategy

	Idea	Mechanism	Benefits
Transform Market with Information	Identify Cost-Effective Savings in Every Commercial Building	Require businesses to conduct an energy audit every 5 years for business license renewal, including identifying and listing applicable efficiency measures.	Ensure building owners, managers, and tenants know exactly how much energy – and money – they can save.
	Disclose Energy Performance Information	Require building owners and managers to share energy performance data with the City. Publish database to inform stakeholders.	We manage what we measure. Tracking helps identify key factors in building performance, including occupant behavior. Monitoring and reporting provides a “miles per gallon” metric that enables tenants and buyers to identify efficient buildings.
	Resolve “Split Incentives”	Provide a Green Tenant Toolkit. Make submetering a policy priority.	Help landlords and tenants mutually benefit from reduced utility costs and sustainable operations.
	Make Incentives Easy	Develop a web-based tool that finds all incentives, rebates, and financing	Offset the cost of improvements and streamline the payment of incentives for energy improvements.
	Educate, Train, Mentor, and Market Energy Efficiency	Promote programs, facilitate mentorship, and partner with institutions.	Enhance workforce capacity. Engage stakeholders to improve energy efficiency
Lead	Lead By Example in Public Facilities	Benchmark and disclose energy performance for city facilities. Budget to pilot local uses of clean technology.	Leadership inspires others to act. The City uses a fraction of overall energy, but is the largest consumer. Clean tech demonstrations save energy and promote the economy.
Capital	Provide Financing	Launch the San Francisco Sustainable Financing (SF ²) Loan Program. Require efficiency prior to receiving funds for renewables.	Financing enables cost-effective energy use reductions through voluntary tax liens. Lowest cost carbon reduction is achieved by prioritizing efficiency.

ARRA (via CEC) funded Retrofit Financing, Residential Retrofit Marketing & Public Awareness

*In partnership with CPUC & IOU Statewide Residential
Whole House Retrofit Program*



Reduce energy use. Save money. Create jobs.



www.energyupgradeca.org

AB 758 (Skinner, 2009)

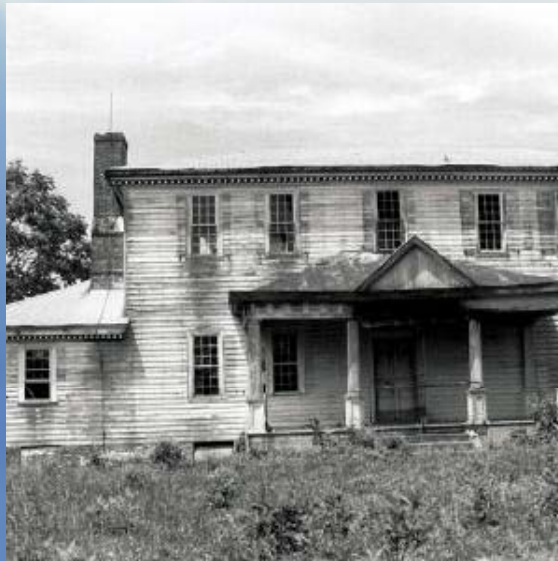
- ❖ Calls for a comprehensive program to achieve energy savings in CA's existing building stock
- ❖ CEC must develop and implement program, in collaboration with all stakeholders

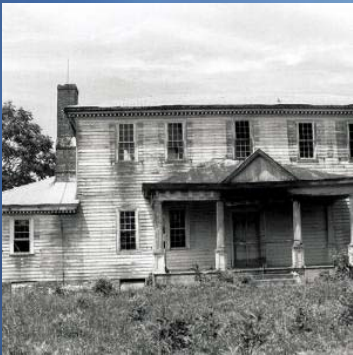


AB 758:

a NEW law for OLD buildings

- ❖ Calls for a complimentary portfolio of techniques, applications, and practices to improve the efficiency of buildings that fall significantly below current California Building Energy Efficiency Standards





AB 758 Elements

Program components will include:

- ❖ Public Awareness Campaign
- ❖ Workforce Development
- ❖ Financing Options
- ❖ Energy Performance Rating Systems
- ❖ Energy Performance Disclosures
- ❖ Efficiency Recommendations
- ❖ Efficiency Improvements



Isn't CA already doing this?

- ❖ IOU 2010-2012 energy efficiency programs for existing buildings ~ **\$2.5 B**
- ❖ California Building Energy Efficiency Standards applies to additions & alterations of existing buildings
- ❖ California Long Term Energy Efficiency Strategic Plan (CPUC, 2008)
- ❖ CA's American Recovery and Reinvestment Act (ARRA) funding ~ **\$740 M building efficiency upgrades**



What's new with AB 758?

- ❖ CEC given the authority to develop, adopt & implement regulations
 - Potential Rating **Requirements**
 - Potential Improvement **Requirements**
- ❖ Long term, statewide program
 - CEC using ARRA SEP programs to pilot key components of AB 758
 - Increase Public Awareness
 - Pursue Financing Solutions
 - Build Workforce
 - Pilot Rating Programs



AB 758 Timeline

❖ Phase 1: Infrastructure Development (2010 & 2011)

- ARRA SEP Pilots
- Current voluntary energy efficiency programs
- AB 1103: Commercial building energy use disclosure regulations
- Commercial building asset rating system development
- Update HERS II if needed, based on pilot programs



AB 758 Timeline

- ❖ **Phase 2:** Ratings & Disclosures (2012 & 2013)
 - Rulemaking(s) for rating disclosure regulations
 - Develop recommendations for mandatory improvements
- ❖ **Phase 3:** Efficiency Improvements (2014 & ...)
 - Rulemaking(s) for efficiency improvement regulations

